AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (previously presented) A lamp with a reflector, comprising:

a high pressure discharge lamp including a luminous bulb with a luminous substance enclosed therein and a pair of sealing portions extending from the luminous bulb; and

a reflector for reflecting light emitted from the high pressure discharge lamp,

wherein the reflector has a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one said sealing portion and the second opening is substantially filled,

at least one of the pair of sealing portions includes a first glass portion extending from the luminous bulb and a second glass portion provided in at least a portion of the inside of the first glass portion, and the at least one said sealing portion has a portion to which a compressive stress is applied, and

when the pair of sealing portions are disposed to extend in the substantially horizontal direction, a part of a region of the reflector located below the sealing portion is formed with an air inlet for introducing an air flow striking against an upper portion of the luminous bulb and then coming into a lower portion of the luminous bulb.

2. (original) The lamp of claim 1,

wherein the high pressure discharge lamp is a high pressure mercury lamp, and

mercury is enclosed as the luminous substance in an amount of 230 mg/cm^3 or more based on the internal volume of the luminous bulb.

3. (previously presented) A lamp with a reflector, comprising:

a high pressure mercury lamp including a luminous bulb with at least mercury enclosed therein and a pair of sealing portions extending from the luminous bulb; and

a reflector for reflecting light emitted from the high pressure mercury lamp,

wherein the reflector has a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one said sealing portion and the second opening is substantially filled,

each of the pair of sealing portions includes a first glass portion extending from the luminous bulb and a second glass portion provided in at least a portion of the inside of the first glass portion, and both the pair of sealing portions have portions to which a compressive stress is applied,

when the pair of sealing portions are disposed to extend in the substantially horizontal direction, an air inlet is formed in a region of the reflector located below the sealing portion and in front of the luminous bulb with respect to the light emission direction, and an air vent is formed in a region of the reflector located above

the sealing portion and in front of the luminous bulb with respect to the light emission direction,

a duct for passing air is coupled to the air inlet, and

the air inlet and the air vent are arranged so that the air is introduced through the air inlet toward the high pressure mercury lamp and is ejected from the air vent.

4. (original) The lamp of claim 3, wherein the duct and the air inlet are arranged so that at least part of air introduced from the duct via the air inlet strikes against and reflects from a region of the reflector positioned above the sealing portion, the reflected air touches the upper portion of the luminous bulb, and then the air moves to the lower portion of the luminous bulb.

5. (original) The lamp of claim 1, wherein a concave lens is further attached to a position of the reflector located in front of the first opening with respect to the light emission direction.

6. (original) The lamp of claim 3, wherein a concave lens is further attached to a position of the reflector located in front of the first opening with respect to the light emission direction.

7. (original) The lamp of claim 1,

wherein at least mercury is enclosed as the luminous substance in the luminous bulb,

the amount of the enclosed mercury is 270 mg/cm^3 or more based on the internal volume of the luminous bulb,

halogen is enclosed in the luminous bulb, and

the lamp has a bulb wall load of 80 W/cm^2 or more.

8. (original) The lamp of claim 3,

wherein the amount of the enclosed mercury is 270 mg/cm^3 or more based on the internal volume of the luminous bulb,

halogen is enclosed in the luminous bulb, and

the lamp has a bulb wall load of 80 W/cm^2 or more.

9. (original) The lamp of claim 7, wherein the amount of the enclosed mercury is 300 mg/cm^3 or more based on the internal volume of the luminous bulb.

10. (original) The lamp of claim 8, wherein the amount of the enclosed mercury is 300 mg/cm^3 or more based on the internal volume of the luminous bulb.

11. (original) The lamp of claim 1,

wherein in the luminous bulb, electrode rods are opposed to each other,

each of the electrode rods is connected to a metal foil, and

the metal foil is provided in the sealing portion and at least a portion of the metal foil is positioned in the second glass portion.

12. (original) The lamp of claim 3,

wherein in the luminous bulb, electrode rods are opposed to each other,

each of the electrode rods is connected to a metal foil, and

the metal foil is provided in the sealing portion and at least a portion of the metal foil is positioned in the second glass portion.

13. (original) The lamp of claim 11, wherein a coil at least the surface of which contains at least one metal selected from the group consisting of Pt, Ir, Rh, Ru, and Re is wound around at least part of a portion of the electrode rod embedded in the sealing portion.

14. (original) The lamp of claim 12, wherein a coil at least the surface of which contains at least one metal selected from the group consisting of Pt, Ir, Rh, Ru, and Re is wound around at least part of a portion of the electrode rod embedded in the sealing portion.

15. (original) The lamp of claim 1,

wherein a metal portion which comes into contact with the second glass portion and which is used for supply of power is provided in the sealing portion,

the compressive stress is applied in at least the longitudinal direction of the sealing portion,

the first glass portion contains 99 wt% or more of SiO_2, and

the second glass portion contains SiO_2 and at least one of 15 wt% or less of Al_2O_3 and 4 wt% or less of B.

16. (original) The lamp of claim 3,

wherein a metal portion which comes into contact with the second glass portion and which is used for supply of power is provided in the sealing portion,

the compressive stress is applied in at least the longitudinal direction of the sealing portion,

the first glass portion contains 99 wt% or more of SiO_2, and

the second glass portion contains SiO_2 and at least one of 15 wt% or less of Al_2O_3 and 4 wt% or less of B.

17. (original) The lamp of claim 1,

wherein the compressive stress in a region of the sealing portion corresponding to the second glass portion is from 10 kgf/cm^2 to 50 kgf/cm^2 inclusive when the sealing portion is measured by a sensitive color plate method utilizing the photoelastic effect.

18. (original) The lamp of claim 3,

wherein the compressive stress in a region of the sealing portion corresponding to the second glass portion is from 10 kgf/cm^2 to 50 kgf/cm^2 inclusive when the sealing portion is measured by a sensitive color plate method utilizing the photoelastic effect.

19. (currently amended) A lamp with a reflector, comprising:

a high pressure mercury lamp including a luminous bulb with at least mercury enclosed therein and a pair of sealing portions extending from the luminous bulb; and

a reflector for reflecting light emitted from the high pressure mercury lamp,

wherein the reflector has a first opening located in a forward position of the reflector with respect to a light emission direction, the reflector is formed with a second opening into which one of the pair of sealing portions is inserted, and clearance between the one said sealing portion and the second opening is substantially filled,

the luminous bulb of the high pressure mercury lamp encloses mercury in an amount of 270 mg/cm^3 or more based on the internal volume of the luminous bulb,

the high pressure mercury lamp has a bulb wall load of 80 W/cm^2 or more,

when the pair of sealing portions [[are]]<u>is</u> disposed to extend in the substantially horizontal direction, an air inlet is formed in a region of the reflector located below the sealing portion <u>with respect to gravity</u> and in front of the luminous bulb with respect to the light emission direction, and an air vent is formed in a region of the reflector located above the sealing portion <u>with respect to gravity</u> and in front of the

luminous bulb with respect to the light emission direction,

a duct for passing air is coupled to the air inlet, and

the air inlet and the air vent are arranged so that the air is introduced through the air inlet onto an upper portion of the lamp by deflection off a region of the reflector disposed above the upper portion of the lamp, and then flows onto a lower portion of the lamp before being ~~toward the high pressure mercury lamp and is~~ ejected from the air vent.

20. (original) The lamp of claim 1,

wherein the duct and the air inlet are arranged so that at least part of air introduced from the duct via the air inlet strikes against and reflects from a region of the reflector positioned above the sealing portion, the reflected air touches the upper portion of the luminous bulb, and then the air moves to the lower portion of the luminous bulb,

the reflector is an elliptical mirror, and

a concave lens is attached to a position of the reflector located in front of the first opening with respect to the light emission direction.

21. (original) The lamp of claim 3,

wherein the duct and the air inlet are arranged so that at least part of air introduced from the duct via the air inlet strikes against and reflects from a region of the reflector positioned above the sealing portion, the reflected air touches the upper portion of the luminous bulb, and then the air moves to the lower portion of the luminous bulb,

the reflector is an elliptical mirror, and

a concave lens is attached to a position of the reflector located in front of the first opening with respect to the light emission direction.

22. (original) The lamp of claim 1, wherein a trigger line is wound around at least one of the pair of sealing portions.

23. (original) The lamp of claim 3, wherein a trigger line is wound around at least one of the pair of sealing portions.

24. (original) The lamp of claim 19, wherein a trigger line is wound around at least one of the pair of sealing portions.

25. (original) An image projection apparatus comprising:

the lamp with a reflector of claim 1; and

an optical system using the lamp with a reflector as a light source.

26. (previously presented) An image projection apparatus comprising:

the lamp with a reflector of claim 3; and

an optical system using the lamp with a reflector as a light source.

27. (previously presented) An image projection apparatus comprising:

the lamp with a reflector of claim 19; and

an optical system using the lamp with a reflector as a light source.

28. (previously presented) The lamp of claim 1,

wherein the angle at which the air inlet passes through the reflector is tilted with respect to the vertical direction so that the air inlet introduces the air flow striking against the upper portion of the luminous bulb and then coming in to the lower portion of the luminous bulb.

29. (previously presented) The lamp of claim 4,

wherein an angle at which the air inlet passes through the reflector is tilted with respect to the vertical direction, and/or

a direction in which the duct extends is tilted with respect to the horizontal direction.

30. (previously presented) The lamp of claim 19,

wherein an angle at which the air inlet passes through the reflector is tilted with respect to the vertical direction and/or a direction in which the duct extends is tilted with respect to the horizontal direction so that at least part of air introduced from the duct via the air inlet strikes against and reflects from a region of the reflector positioned above the sealing portion, the reflected air touches the upper portion of the luminous bulb, and then the air moves to the lower portion of the luminous bulb.